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User Experience

Human-Computer Interaction course 2022
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Professor of Practice in Experience Design
Aalto ARTS, Department of Design, Encore research team

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Why: User Experience in Business
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Assignment

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User Experience in Business

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Eras of Livelihood

What do people do for living?

Hunting, gathering

Agriculture

Industry

Information

Experience

Based on Rolf Jensen (1996): The dream society

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Experience Economy

Experience Economy stages memorable personal experiences

The Progression of Value



Pine, J. and Gilmore, J. (1999): *The Experience Economy*

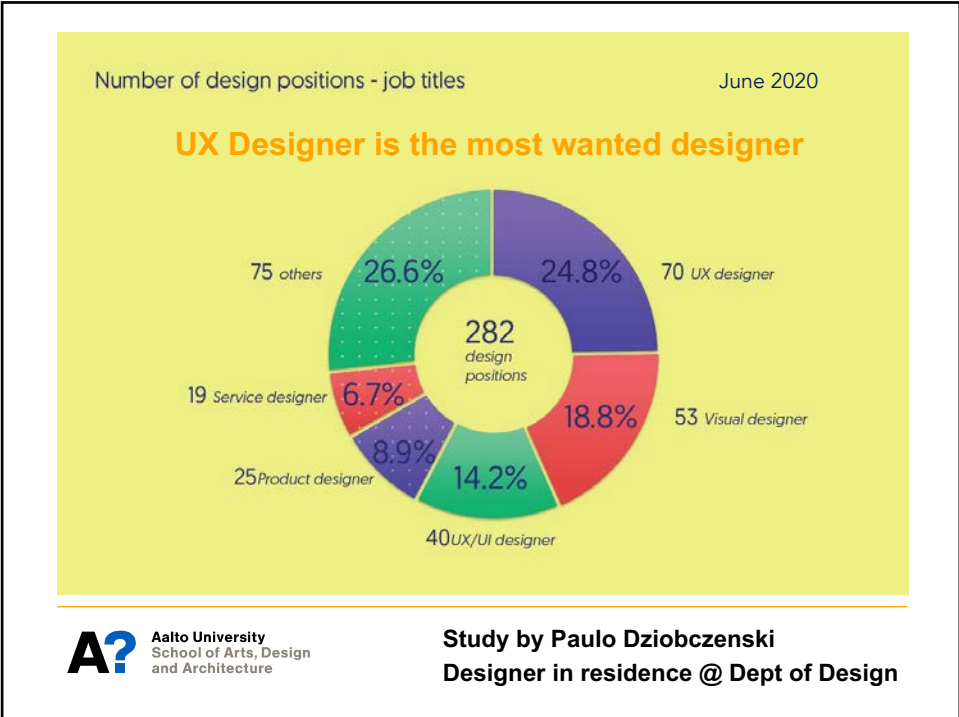
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The dream of every tech company: Superior user experience

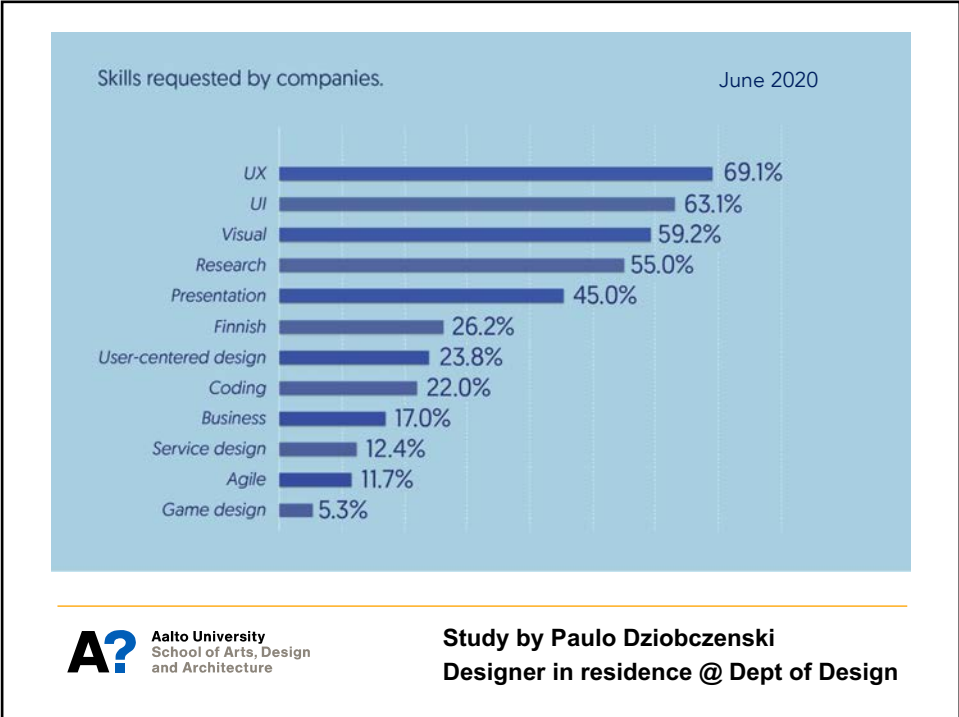


But how?

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User Experience in academia

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Research field studying UX: Human-Computer Interaction

Human-computer interaction (HCI):
A multidisciplinary field of study focusing on
the interaction between humans (the users) and computers

The focus of HCI has developed over the decades

Tens of academic **journals** and **conferences** focusing on HCI

Human-Computer Interaction
ACM TOCHI
IJ Human-Computer Studies
Interacting with Computers
Behaviour and Information Technology

CHI – Human Factors in Computing Systems
INTERACT
NordiCHI
Designing Interactive Systems
...



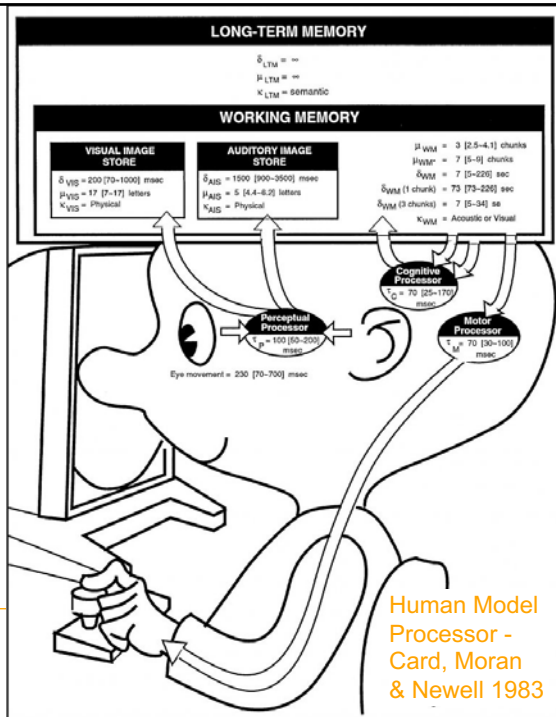
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1st wave of HCI Human-Computer Interaction in 1980's

How to utilize the full power of computers, minding **human factors**?

- Cognitive aspects
- Ergonomics
- Avoid errors in use
- Human as processor



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2nd wave of HCI Human-Computer Interaction in 1990's

How to avoid wasted time and frustration due to **usability** problems?

- Ease of use
 - User-friendliness
 - From human factors to human actors
- Bannon 1986



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3rd wave of HCI Human-Computer Interaction in 2000's

How to make interactive systems enjoyable?

- **User experience (UX)**
- Improve everyday life
- From usability bug fixing to designing for pleasure
- Bodker 2006



Photo by MacQ

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4th wave of HCI Human-Computer Interaction in 2010's

How products can help people to live a good life?

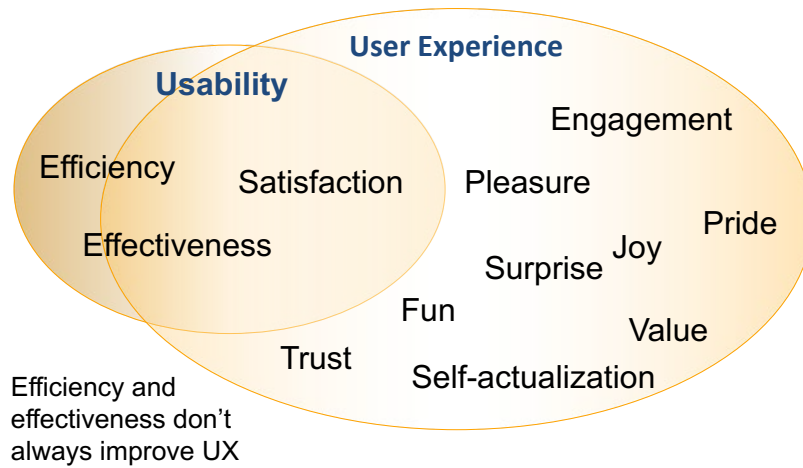
- **Wellbeing**
- Sustainable life style
- From addictive to ethical systems
- Still about experiences, but for a good cause



Philips Wake-up Light
A better way to wake up

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Usability vs. User Experience

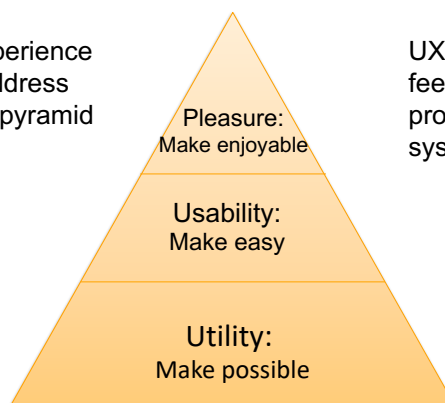


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What is user experience (UX)?

Term user experience invented to address the top of the pyramid

UX: How a person feels about using a product, service, or system



Adapted from Jordan, P. Designing Pleasurable Products (2002)
An early view on experience design: Hierarchy of consumer needs

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Definition of user experience

“Person's perceptions and responses resulting from the use and/or anticipated use of a product, system or service”

- ISO 9241-210:2010 Human-centred design for interactive systems

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User Experience, UX

Context

User

Product

User experience is subjective, context-dependent and dynamic

- Law, Roto, Hassenzahl, Vermeeren & Kort: Understanding, Scoping and Defining User eXperience: A Survey Approach. ACM CHI 2008.

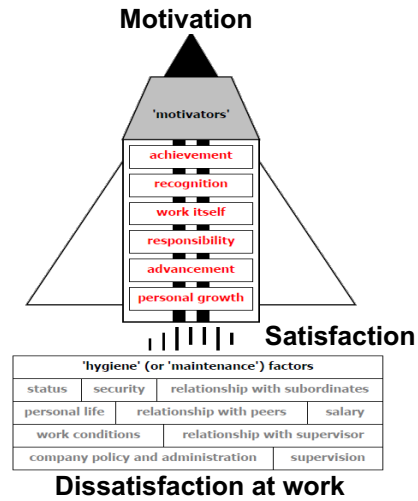
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Hygiene vs. Motivation (at work)

Hertzberg's Theory on Hygiene factors and Motivators

Hygiene factors remove dissatisfaction

Motivators drive job satisfaction

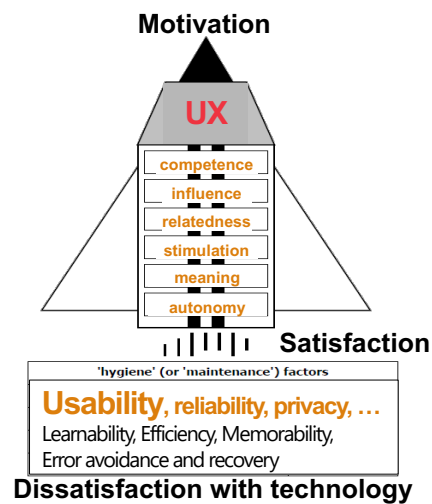


Usability vs. User Experience

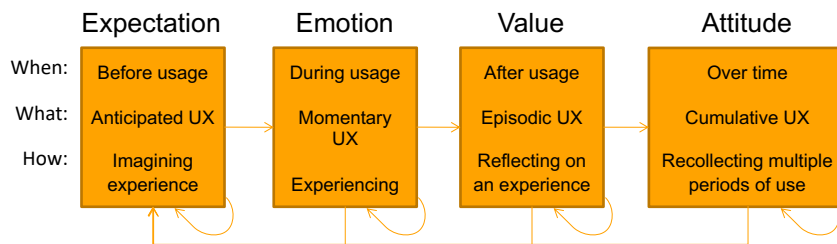
Similar idea applies to Usability and User experience

Usability removes dissatisfaction

UX drives motivation, enjoyment



Time spans of user experience



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User Experience in Design

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DO NOT

...settle with removing frustration

if you want to design for the best UX

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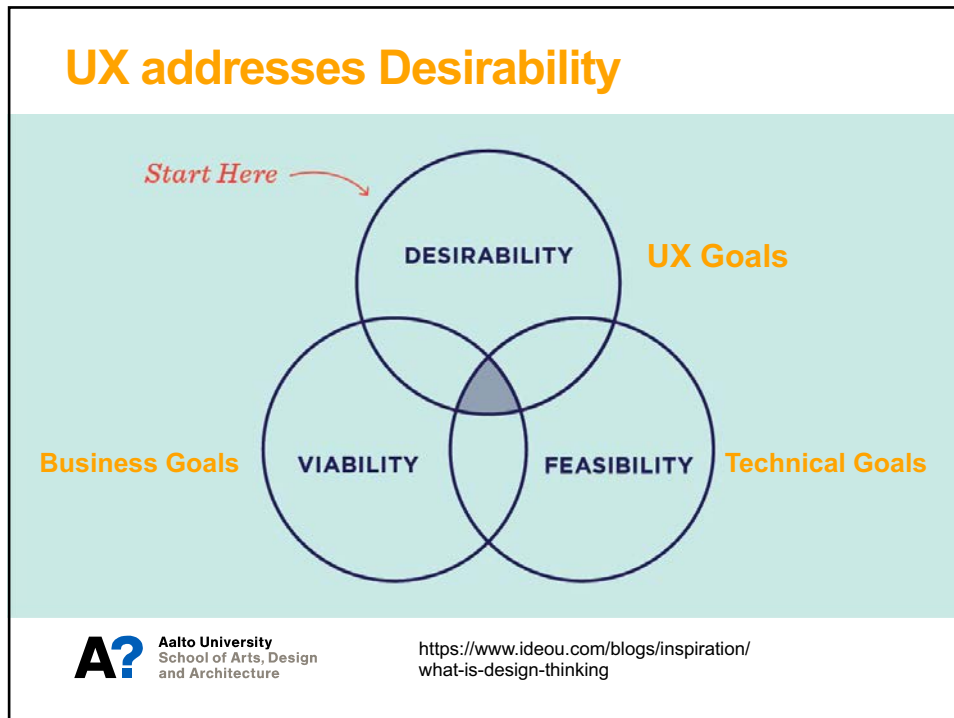
Problem-driven vs. experience-driven

Technology-driven design **Experience-driven design**

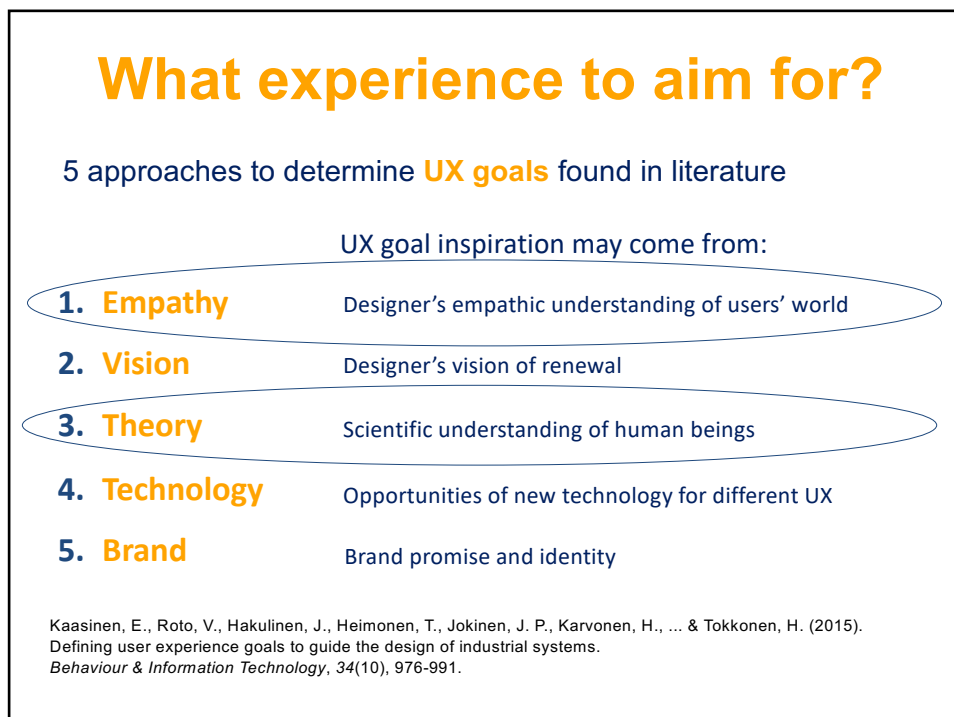
Early view on experience design:
Jordan, P.: Designing Pleasurable Products
(2002), Hierarchy of consumer needs

Fundamental idea of experience-driven design:
Define experience first, then the means to enable it.

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A source for UX knowledge

UX goal inspiration may come from:

1. Empathy

Designer's empathic understanding of users' world



User research

Kaasinen, E., Roto, V., Hakulinen, J., Heimonen, T., Jokinen, J. P., Karvonen, H., ... & Tokkonen, H. (2015). Defining user experience goals to guide the design of industrial systems. *Behaviour & Information Technology*, 34(10), 976-991.

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A source for UX knowledge

UX goal inspiration may come from:

3. Theory

Scientific understanding of human beings



Good experiences can be mapped to basic psychological needs

What are the basic psychological needs of human beings?
Which of these needs are the most relevant in this use context?

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Basic Psychological Needs by Sheldon

1. Autonomy
2. Competence
3. Relatedness
4. Self-actualization
5. Physical thriving
6. Pleasure, stimulation
7. Money, luxury
8. Security
9. Self-esteem
10. Popularity, influence

- Universal
- Context specific



Sheldon, K. M., Elliot, A. J., Kim, Y., & Kasser, T. (2001).
 What is satisfying about satisfying events?
 Testing 10 candidate psychological needs.
Journal of personality and social psychology, 80(2), 325.

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Definitions of 10 Basic Psychological Needs

1. **Autonomy** To experience you are the cause of your own actions rather than feeling that external forces or pressure are the cause of your action
2. **Competence** To experience that you are very capable and effective in your actions rather than feeling incompetent or ineffective
3. **Relatedness** To experience you have regular intimate contact with people who care about you rather than feeling lonely and uncared of
4. **Self-actualization** To experience you are developing your best potentials and making life meaningful rather than feeling stagnant and that life does not have much meaning
5. **Physical thriving** To experience that your body is healthy and well-taken care of rather than feeling out of shape and unhealthy
6. **Pleasure, stimulation** To experience you get plenty of enjoyment and pleasure rather than feeling bored and understimulated by life
7. **Money, luxury** To experience that you have plenty of money to buy most of what you want rather than feeling like a poor person who has no nice possessions
8. **Security** To experience safe and in control of your life rather than feeling uncertain and threatened by your circumstances
9. **Self-esteem** To experience you are a worthy person who is as good as anyone else rather than feeling like a "loser"
10. **Popularity, influence** To experience that you are liked, respected, and have influence over others rather than feeling like a person whose advice or opinion nobody is interested in

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Experience-driven Design case

- E-learning tool for beginner forklift truck drivers
- Save time of a human teacher
- Learn to drive the forklift with enjoyment
- User Experience goals:
 - **Competence**
 - **Security**
 - **Stimulation**



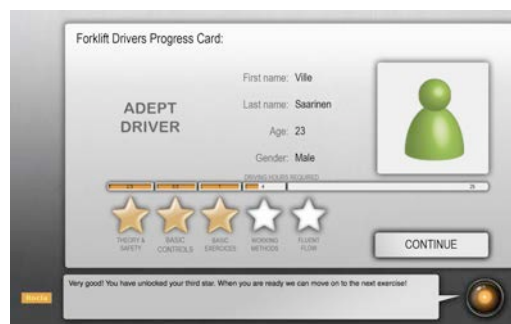
Course work for Rocla by Tatu Vienamo & Egert Uibo
Master's students of industrial and strategic design
in Aalto ARTS

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Design for Stimulation / Motivation

Keep up the motivation to learn with gamification

- Each phase was a step towards the most difficult task
- A grade showing how well he/she did



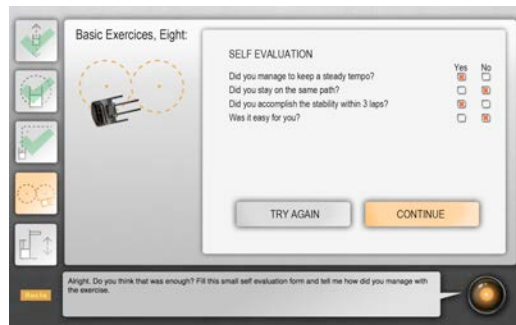
E-learning tool for
beginner forklift
drivers
by Tatu Vienamo
& Egert Uibo

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Design for Competence & Security

Balance the feeling of incompetence and the feeling of being more competent than one actually is

➤ Self-evaluation



E-learning tool for beginner forklift drivers
by Tatu Vienamo & Egert Uibo

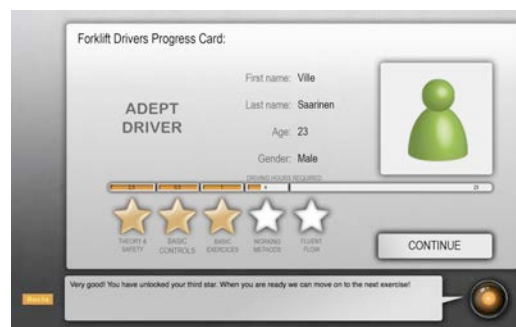
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Design for the Feeling of Security

Feeling of being looked after even without human teacher

➤ Virtual eye 'follows' the driver while practicing

➤ Virtual eye gives feedback with natural language



E-learning tool for beginner forklift drivers
by Tatu Vienamo & Egert Uibo

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How to evaluate user experience?

AttrakDiff –
A popular UX
questionnaire

Based on 4 aspects:

1. Pragmatic
2. Hedonic – Identification
3. Hedonic – Stimulation
4. Appeal

Hassenzahl, M., Burmester, M., & Koller, F. (2003). AttrakDiff: Ein Fragebogen zur Messung wahrgenommener hedonischer und pragmatischer Qualität. In *Mensch & computer 2003* (pp. 187-196).

confusing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	clearly structured
repelling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	appealing
bold	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	cautious
innovative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	conservative
dull	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	captivating
undemanding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	challenging
motivating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	discouraging
novel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	ordinary
unnuly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	manageable
human	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	technical
isolating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	connective
pleasant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	unpleasant
inventive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	conventional
simple	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	complicated
professional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	unprofessional
ugly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	attractive
practical	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	impractical
likeable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	disagreeable
cumbersome	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	straightforward
stylish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	tacky
predictable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	unpredictable
cheap	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	premium
alienating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	integrating
brings me closer to people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	separates me from people
unpresentable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	presentable
rejecting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	inviting
unimaginative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	creative
good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	bad

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Evaluation against UX Goals

Mark the feelings you experienced while using the prototype

Relatedness	To experience that you have regular intimate contact with people who care about you rather than feeling lonely and uncared of
Popularity	To experience that you are liked, respected, and have influence over others rather than feeling like a person whose advice or opinion nobody is interested in
Self-actualizing	To experience you are developing your best potentials and making life meaningful rather than feeling stagnant and that life does not have much meaning
Self-esteem	To experience you are a worthy person who is as good as anyone else rather than feeling like a “loser”
Autonomy	To experience you are the cause of your own actions rather than feeling that external forces or pressure are the cause of your action
Stimulation	To experience you get plenty of enjoyment and pleasure rather than feeling bored and understimulated by life
Competence	To experience that you are very capable and effective in your actions rather than feeling incompetent or ineffective
Security	To experience safe and in control of your life rather than feeling uncertain and threatened by your circumstances
Physical thriving	To experience that your body is healthy and well-taken care of rather than feeling out of shape and unhealthy
Luxury	To experience that you have plenty of money to buy most of what you want rather than feeling like a poor person who has no nice possessions

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Thanks!

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User Experience - Assignment

- 1. Choose a pragmatic digital service**
 - E.g., Navigator, Room booking, E-banking, Web search, ...
- 2. Pick 3 basic psychological needs**
 - See Sheldon's list
- 3. Apply the 3 needs as UX goals in (re)design of the service**
 - With the 3 needs, ideate key features for 3 different designs, e.g.
 - *Design 1 – Stimulating Navigator*
 - *Design 2 – Relatedness Navigator*
 - *Design 3 – Self-esteem Navigator*
- 4. Describe your 3 design proposals**
 - Storyboard / User interface designs / Explaining features
 - Clarify how your 3 designs differ and address the UX goals
- 5. Reflect on what you learned from this exercise**

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